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BOTANICAL ACTIVITIES OF PERCIVAL LOWELL.

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THAT Percival Lowell took an active interest in trees was probably not known to many persons, for he published only one botanical paper and he had no botanical associates except in this Arboretum. It is not surprising that a man with his active and inquiring mind brought up in New England should, when he found himself in Arizona, want to know something of the strange plants which grew everywhere about him and which were so entirely unlike the plants which he had known as a boy in Massachusetts, and later in Japan and Korea. The love of plants, too, was in his blood and only needed the opportunity of this new field to make itself felt.

Percival Lowell's great great grandfather, John Lowell, was one of the original members of the Massachusetts Society for Promoting Agriculture and its second President, serving from 1796 until his death in 1802. He is less well known for his connection with rural affairs than his son John Lowell, spoken of generally in his day as "the Norfolk farmer," and a generous and successful promotor of scientific agriculture and horticulture in Massachusetts, whom Daniel Webster called "the uniform friend of all sorts of rural economy." The second John Lowell became a member of the Agricultural Society in 1816 and served from the time of his election until 1830 as its Corresponding Secretary, and as one of the editors of its publication, *The Massachusetts Agricultural Repository and Journal*. During these years articles by him on agriculture, horticulture and forestry are found in almost every number. In volume v. published in 1819 there is an important paper by John Lowell on "The Gradual Diminu-

tion of the Forests of Massachusetts, and the importance of early attention to some effectual remedy, with extracts from the work of M. Michaux on the Forest Trees of North America." Volume vii. contains articles from his pen on "Some slight notice of the Larch tree (*Pinus Larix*), known in various parts of the country under the several names of Juniper, Hackmatack, and Larch"; on "Fruit Trees," signed by the Norfolk Gardener, and on "Raising the Oak from the Acorn and the best way of doing it." The last volume of this publication which appeared in 1832, when he was seventy-one years old, contains an article by John Lowell on "The Extraordinary Destruction of the last Year's Wood in Forest Trees and the probable Causes of it;" and on "Live Hedges for New England." The second John Lowell was active in establishing and maintaining the Botanic Garden of Harvard College and was one of the original members of the Massachusetts Horticultural Society. To the first annual festival of the Horticultural Society held in the Exchange Coffee House on State Street, September 19, 1829, he sent from his greenhouses in Roxbury Orange-trees covered with flowers and fruit and a bunch of grapes weighing three pounds.

John Amory Lowell, the son of the second John Lowell and the grandfather of Percival Lowell, was deeply interested in botany and in 1845, thirty years after his graduation from Harvard College, began the collection of an herbarium and botanical library with the purpose of devoting himself seriously to the study of plants. He had made valuable collections and a large botanical library when the financial troubles of 1857 forced him to abandon botany and devote himself again to business affairs. His most valuable books were given by him to his friend Asa Gray and now form an important part of the Library of the Gray Herbarium. His herbarium and his other botanical books were given to the Boston Society of Natural History. John Amory Lowell, like his father and grandfather, was a member of the Massachusetts Society for Promoting Agriculture. He was succeeded by his son John Lowell, who in turn was succeeded by his son, another John Lowell, who of the fifth generation in direct descent from its second President is now a Trustee of this Society.

Percival Lowell's love of plants certainly came to him naturally. I first met him in the Arboretum many years ago examining the collection of Asiatic Viburnums in which he was interested at that time, but it was not until 1910 that he began to send specimens to the

Arboretum, including that of an Oak which he had found growing near his observatory and which so far as it is possible to judge is an undescribed species. Interest in this Oak led him to look for other individuals and to extend his botanical explorations. During these he visited Oak Creek Canyon, a deep cut with precipitous sides in the Colorado plateau which heads about twenty miles south of Flagstaff and carries in its bottom a small stream which finally finds its way into the Verde northwest and not far from Camp Verde. Lowell appears to have been the first botanist who visited the upper part, at least, of this Canyon where he found a number of interesting plants, notably *Platanus Wrightii* and *Quercus arizonica*, which before his explorations were not known to extend into the United States from Mexico beyond the canyons of the mountain ranges of southern Arizona and New Mexico. In Oak Creek Canyon Lowell found a new Ash-tree somewhat intermediate between *Fraxinus quadrangulata* of the east and *F. anomala* of our southwestern deserts which will bear his name. Later Lowell explored Sycamore Canyon which is west of Oak Creek Canyon and larger and deeper than Oak Creek Canyon and, like it cuts through the Colorado plateau and finally reaches the Verde near the mouth of Oak Creek.

Juniperus in several species abounds on the Colorado plateau, and Lowell became deeply interested in these trees and was preparing to write a monograph of our southwestern species. His observations on the characters and altitudinal range of the different species, illustrated by abundant material, have been of great service to me.

Lowell's only botanical paper, published in the May and June issues of the *Bulletin of the American Geographic Society* in 1909, is entitled "The Plateau of the San Francisco Peaks in its Effect on Tree Life." In this paper, which is illustrated by photographs made by the author of all the important trees of the region, he discusses the altitudinal distribution of these trees, dividing his region into five zones which he illustrates by a number of charts showing the distribution of vegetation in each. It contains, too, an important and interesting discussion of the influence on temperature and therefore on tree growth of the larger body of earth in a plateau as compared with a mountain peak where, on account of greater exposure, the earth cools more rapidly.

A bundle of cuttings of what is probably a new species of Willow, to obtain which Lowell had made a long and hard journey, with his

last letter and a photograph of the Willow, came only a few days before the telegram announcing his death. Botany therefore occupied his thoughts during his last days on earth.

The death of Percival Lowell is a severe loss to the Arboretum. He understood its purpose and sympathized with its efforts to increase knowledge. Few collectors of plants have shown greater enthusiasm or more imagination, and living as he did in what he has himself described as "one of the most interesting regions of the globe" there is every reason to believe that as a botanist Percival Lowell would have become famous.

ARNOLD ARBORETUM.

THE GENUS ERECHTITES IN TEMPERATE NORTH AMERICA.

M. L. FERNALD.

WHILE botanizing in October last along the sandy strand on the south side of Cape Cod, Messrs. F. K. Butters, Harold St. John, and the writer found a characteristic *Erechtites* which seemed unusual on account of its very fleshy foliage and the very broadly ovoid and abruptly acuminate heads. A few specimens were collected for further examination, at Hyannis on October 7, at Yarmouth on October 8; and after returning to Cambridge the writer was surprised to find that in its very long inflated achenes and in some other characters the strand plant was quite unlike *E. hieracifolia*. Consequently, with Professor Butters he returned to the Cape and on October 14th made a further examination and collection of the strand plant, which in all its characters maintains the distinctions noted in the original collections. The plant seems to be a very well marked species which is here proposed as

ERECTITES megalocarpa, n. sp., ab *E. hieracifolia* differt foliis subcarnosis; capitulis ovoideis abrupte acuminatis; involucro 1.5-2 cm. alto, bracteis lanceolatis subobtusis ad basim dilatata 1-3 mm. latis; corolla floris perfectae brunneo-lineata, lobis brunneo-marginatis nervatisque, tubo viride; acheniis 4-5.5 mm. longis brunneis vel